

LII.—On the Production of similar Gonozooids by Hydroid Polypes belonging to different Genera*. By the Rev. THOMAS HINCKS, B.A.

[Plate IX. figs. 1 & 2.]

IN the course of the past summer I have had the opportunity of studying at Ilfracombe the reproduction of the *Stauridia producta*, a small Tubularian Zoophyte, which abounds in rock-pools and under ledges near the base of the Capstone. It was first characterized by Dr. Strethill Wright (Edinb. New Phil. Journ., N.S., for April 1858); but he did not observe the reproductive bodies. It has been my good fortune to meet with one or two polypes on which they were present in an advanced stage of development, and I am thus enabled to complete the history of the species.

My principal object, however, in this paper is to put on record the remarkable fact that the gonozooid of the *Stauridia producta* is identical with that of the *Coryne eximia* (Allman), a member of a distinct genus.

Stauridia is nearly allied to *Coryne*, but is distinguished from it by having tentacles dissimilar in character. The upper, which are arranged in one or more whorls, are furnished with globular tips, as in *Coryne*, while the lower, which form a single verticil, are filiform. The former are armed with thread-cells, and endowed with vigorous percussive power, and constitute offensive and prehensile instruments; the latter are rigid, and furnished with palpoils, and seem to act as tactile organs only.

The *S. producta* is a small, creeping, unbranched form; the *C. eximia* is branched, and attains a considerable size. Yet of the life-series of these two Hydroids, thus dissimilar in general character, one term is identical. The free reproductive zooids of each are, at the time of detachment, undistinguishable from one another. A strictly analogous fact would be the production of flower-buds absolutely identical by two plants of different genera.

In his account of *Coryne eximia* ('Annals' for August 1859), Prof. Allman has remarked on the similarity of its gonozooid to that of another species of the same genus—the *Coryne Sarsii* of Lovén†. He was unable to indicate any character which could be "justly considered as pointing to a specific distinction between the two Medusæ," though he admits that "a more exact comparison with the living animal" might probably result in the detection of differences not then apparent. Dr. Wright,

* The substance of this paper was communicated to the Natural-History Section of the British Association, at the late Cambridge Meeting.

† The *Syncoryna decipiens* of Dujardin,

who has had the opportunity of observing the reproductive zooids of these two species, informs me that one of them has thread-cells on the umbrella, and the other not. He believes that they are present on that of *C. eximia*; and this opinion is confirmed by Mr. G. Hodge's drawing (Pl. IX. fig. 1). It may perhaps be doubtful whether the zooid of *C. Sarsii* is always destitute of them. They seem to be represented in Sars's figure of this species (Fauna Litt. Norvegiæ, tab. 1. figs. 3, 4). But, at any rate, if there be a difference between the gonozooids of these two species, it is of the slightest kind.

In the case of *Stauridia producta* and *Coryne eximia* the identity is complete; and it is the more remarkable as the polypes are generically distinct.

The gonophores of the *Stauridia* are produced at the base of the lower capitata tentacles. I have not observed more than two on a polype; and of these one was in a much more advanced stage of development than the other. They are pyriform at first, very slightly pedunculate, and of a pinkish colour. The contained zooid gradually assumes a hemispherical form as development proceeds; the marginal portion of the disk is folded in, and the knotted arms lie in the interior. After a while, the investing sac of the gonophore appears to be ruptured by the frequent contractions of the umbrella, and by the same movements the involved portion of the disk bearing the tentacles is slowly forced out. In the case which came under my observation, half the margin, with two tentacles, was first pushed out; after a few more violent spasms, the other half followed; and almost immediately the little crystal bell, with its rose-coloured manubrium and four rose-coloured tubercles, from which as many beaded arms were pendent, liberated itself and moved gracefully through the water. (Pl. IX. fig. 2.) The umbrella is studded with thread-cells, which show as bright points against a dark ground. From the centre is suspended a rose-coloured manubrium with a simple mouth. Four radiating vessels pass from the base of it to the marginal canal, and are continuous with as many tentacles. The latter originate in four rose-coloured tubercles, on one side of which is placed a dark reddish-brown ocellus*. The arms are very extensile, and are set, along their entire length, with knot-like clusters of thread-cells, and terminate in a large group which forms a spherical bulb at the tip. I have counted about three dozen of these clusters on a single arm. There are no marginal bodies except the tentacles.

A comparison of this description (which is taken from the

* Dujardin describes the ocellus of *Coryne Sarsii* as "black;" Sars, however, calls it "braun-rothen." The colour in the *Stauridia* is so deep that it might readily be mistaken for black.

Ilfracombe specimen of the *Stauridia*-zooïd) with Prof. Allman's account of the Medusoid of his *Coryne eximia* will at once show the perfect identity of the two forms.

Mr. George Hodge has kindly permitted me to make use of a beautiful drawing of the latter from his own pencil (Plate IX. fig. 1), and I have placed beside it a sketch of the former by myself (fig. 2). The diversity in shape is probably due to a difference in age. The specimen from which my figure was taken was in an immature state*.

The *Sarsia turricula* of Prof. M'Crady's paper on "the Gymnophthalmata of Charleston Harbour" (Proc. of Elliott Soc. of Nat. Hist. vol. i. p. 138, pl. 8. figs. 6-8) appears to be identical with the form which I have just described. His account, however, of the *Coryne* from which he supposed it to proceed does not enable me to determine the species with certainty.

Throughout this paper I have employed the term *Gonozooïd* to designate the free reproductive body, instead of the more usual term *Medusoid*. The latter seems to me objectionable, as tending to perpetuate a false conception of the nature of the sexual zooïd. It helps to keep up the idea of a distinct and absolute individuality in the latter, and to conceal its real significance, as the mere equivalent of the flower-bud in the plant. In the life-series of the Hydroid, the polype is the *alimentary zooïd*, and the sexual element or term may be conveniently and correctly designated the *gonozooïd*.

EXPLANATION OF PLATE IX.

Fig. 1. Gonozooïd of *Coryne eximia*, from a drawing by Mr. G. Hodge.

Fig. 2. Gonozooïd of *Stauridia producta*.

Fig. 3. *Laomedea fragilis*, n. sp.; natural size and magnified.

Fig. 4. *Atractylis margarica*, n. sp., with its gonophore; 4 a, one of the tentacular clusters of thread-cells; x, a single thread-cell from the above; 4 b, the lid of the gonophore; 4 c, one of the branched processes; 4 d, an ovum; 4 e, a portion of the creeping stem, with cells.

BIBLIOGRAPHICAL NOTICE.

Memoir of the Rev. John Stevens Henslow, M.A. By the Rev. LEONARD JENYNS, M.A. London: Van Voorst, 1862. 12mo.

PERHAPS we are guilty of neglect in not having noticed the Life of Henslow sooner. Our readers must take this statement as an apology, if one is necessary, the fact being that no review was required to direct the attention of our readers to this work. All of them knew the lamented Professor by reputation, many personally; and

* There are other slight differences between the figures; but a comparison of the detailed descriptions of the two forms shows that those belong to the *drawings*, and not to the objects themselves.